wieland

gesis®LON R-56/0 (RC)…

EnOcean® LON Gateway

Manual

Revision Listings

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Dear customer,

Congratulations on purchasing your new components of the gesis LON R building installation system. You are now the owner of a product with the LON technology which provides you with a user-friendly means of dealing with numerous building control tasks.

Please familiarise yourself with the descriptions in this manual. It will provide you with all the information and assistance required for faultless operation of your gesis system. Should you have additional questions or require further assistance, please contact our team of specialists using the contact information below and they will be happy to help you.

Wieland Electric GmbH
Brennerstraße 10-14
96052 Bamberg, Germany

Technical customer service hotline (for technical issues concerning accessories, functions, product features and possible applications):

Tel.:   +49 (0) 9 51 / 93 24-9 96
Fax: +49 (0) 9 51 / 93 26-9 96
Email: BIT.TS@wieland-electric.com

Sales hotline (for information about availability, lead times and prices):
Tel.:   +49 (0) 9 51 / 93 24-9 90
Email: BIT.info@wieland-electric.com

1 About This Operating Manual

1.1 General Information

This operating manual will provide you with support for installing and parameterising gesis LON R modules. In it, you will find information about how devices are programmed, configured and parameterised.

This operating manual contains the information required for proper usage of the product it describes. It describes the gesis LON R component, its technical features, conditions of use, boundary conditions and parameterisation. Installation and connection with the gesis CON connector system are described in the document entitled "System Handling Information" (item no. 0060.2), which is available separately.

gesis systems must only be installed by trained personnel and the applicable regulations observed while doing so. For this reason, the gesis LON R system manual is aimed at:

- Persons responsible for configuring, parameterising and activating LON systems
- System integrators
- Electricians

Specific prerequisites are:

- Basic knowledge of LON bus technology
- Basic knowledge of building installation systems
- Programming knowledge relating to LON objects

1.2 Symbols and Notation Used

The following are used in this operating manual:

NOTICE	A notice informs you about special features of a device or a software function. "Notice" also indicates information that is directly or indirectly related to the safety of personnel or property. It is not used for hazards or hazardous situations.

Menus and Commands	The names of software menus, submenus, options and commands, selection fields and windows are shown in **bold**. Example: Click on **Edit** in the **File** menu.
Keys	Keys and key combinations are shown in UPPERCASE. Key combinations, i.e. keys which have to be pressed simultaneously, are linked with a "+". Keys which have to be pressed one after the other are linked with a "–". Example: Press CTRL+ALT+DEL (simultaneously). Press F12–2 (one after the other). The naming of the keys refers to standard keyboards which are labelled in the language of the user country. It is possible you are using a keyboard with other key labelling, e.g. in the German language.
Objects and variables	Objects, variables, program code and parameters are identified with `typewriter font`.

This operating manual uses various safety notices that are assigned according to the severity of a potential hazard:

"Danger" indicates an imminently hazardous situation or state which, if not avoided, will result in serious injuries or death. The use of "Danger" is limited to the most extreme situations.

DANGER

"Warning" indicates a potentially hazardous situation or state which, if not avoided, **can** result in serious injuries or death.

WARNING

"Caution" indicates a potentially hazardous situation or state which, if not avoided, can result in minor or moderate injuries. "Caution" is also used to warn against unsafe practices or obvious misuse, as well as for situations which may result in material damage or personal injury.

CAUTION

"Danger" or "Warning" are basically used for cases which present a risk to life or limb. Damage to property only falls into these categories if there is also a risk of personal injury that corresponds to these levels.

1.3 Proper Use

- Electrical installations, commissioning and maintenance work, as well as configuring and programming work, must only be performed by qualified electricians with relevant accident prevention training, and in compliance with the applicable regulations.
- Safety precautions and safety devices must comply with the applicable regulations.
- Compliance with the required regulations is achieved when the devices are correctly processed in order to create an end product.
- Damaged products must neither be installed nor put into operation.

WARNING

NOTICE

- On account of the class and degree of protection, all devices must be installed in a gesis distribution box (gesis RAN) or similar housing.
- Due to their holding equipment, devices without locking feet may only be installed in a gesis RAN housing provided by Wieland Electric.
- A power supply from the gesis RM series of devices is required for operating the basic module. If a power supply other than the gesis product intended for this purpose is used, Wieland Electric GmbH cannot guarantee that faultless operation will take place.
- When looping through the voltages, the maximum current of 16 A must not be exceeded.

The control system must only be used when in proper working condition, as well as according to its prescribed usage, with due regard given to safety, awareness of any hazards and following the instructions contained in the operating manual. Reliable and safe operation requires proper transport, storage and installation, as well as careful operation. In particular, safety-related faults must be rectified immediately by a professional.

The control systems are exclusively intended for controlling building equipment. Other applications, or use beyond this scope, are considered to be improper. The manufacturer assumes no responsibility for any damage resulting from usage of this nature.

In order to use the control systems as prescribed, the instructions outlined in this operating manual must be followed for mechanical and electrical installation procedures, as well as for commissioning and operation of the systems.

About This Operating Manual

1.4 Selecting Personnel and Personnel Qualifications

WARNING

- Electrical installations, commissioning and maintenance work, as well and configuring and programming work, must only be performed by trained, qualified electricians with relevant accident prevention training, and in compliance with the applicable regulations.
- Configuring and programming personnel must be familiar with the safety concepts involved in building installation technology.
- Operating personnel must be trained in handling the control system and familiar with the operating instructions.
- Installation, commissioning and maintenance personnel must have a training background which authorises them to carry out work on the control system.

1.5 Tests and Repairs

When measurement or testing procedures are being performed on the active device, the specifications and implementation guidelines of the relevant accident prevention regulations must be observed. Only suitable tools may be used for this.

Repairs to control components must only be carried out by the manufacturer.

CAUTION

Unauthorised opening and improper intervention or repairs can result in material damage or bodily harm.

In the event of a fault, send devices back to:

Wieland Electric GmbH
Abteilung (Department) TQM 3
Brennerstraße 10-14
96052 Bamberg, Germany

1.6 Hazards due to Electrical Energy

The user must ensure that unauthorised and improper interventions are prevented. Personnel must be familiar with all sources of hazards and all procedures involved for the commissioning. This includes both data contained in the gesis "System Handling Information" document (item no. 0060.2) and device packaging inserts as well as the relevant content from this manual.

2 The LON Bus System

2.1 Technology

LON systems are based on an "installation bus": this refers to the cable which links all the devices that are connected and transfers signals between all the bus nodes.

LON is a decentralised bus system. A central unit is not required since each node (bus device) has its own intelligence. Software is used to download all the required parameters to the individual devices via the bus. Different transfer media are available within the LON.

All Wieland LON devices use twisted pair (TP) 2-wire bus technology and a TP/FT-10 transceiver with external power supply. A separate cable is used, which is laid when the standard electrical installation takes place and provides the medium for transporting status messages or switching commands for communication purposes.

In larger LON systems, the subnets are logically linked and electrically isolated from each other by means of routers. The routers ensure that the telegram load on the coupled subnets does not become too great. They prevent telegrams that are only required in particular areas from entering other areas, thereby reducing the bus load. The LON is an event-controlled bus system, which means that telegrams are only created when they are actually needed.

2.2 Topology

Each bus connection represents a node, regardless of whether this is concerned with a straightforward button or complex visualisation.

The nodes in each system are divided into sensors (e.g. buttons, temperature sensors), actuators (e.g. switching outputs, shutter outputs) and system devices (e.g. routers, power supplies).

The smallest unit in the LON system is a subnet. A subnet can link up to 127 nodes. Routers enable up to 255 subnets to be connected to form a domain (a network). This means that networks with more than 32,000 nodes in a domain can be implemented. In the case of extremely complex installations, special couplers can be used to interconnect several domains.

2.3 Addressing

Unique "addresses" are used for identifying and addressing specific bus nodes. The LON system uses two address types:

Neuron ID

The Neuron ID is a 48 bit identifier that is unique worldwide (similar to an Ethernet MAC address) and which is assigned to every LON chip during manufacture. It enables any node to be unambiguously identified at any time. This allows separate LON networks to be automatically combined at a later date in order to create one single network, for example.

Subnet/Node ID

The subnet/node ID is assigned to each node during commissioning. It unambiguously defines each node. Since this address is based on the subnet structure, the bus system itself remains clear, right up to the final extension stage. In addition, the subnet/node ID ensures that the commissioning engineer has enough leeway to take building structures

into account as well. Each device can be addressed in such a way that it can easily be assigned to existing building structures (e.g. "West building, 1st floor, North side").

2.4   Communication

The LONTALK protocol is used for communication between nodes. Logical links are created between buttons, controllers and actuators, for example, by means of "bindings". These links can be established within the same subnet or via multiple routers. If the latter is the case, the required filter tables in the routers are created and stored automatically.

Special routers can also be used to interconnect individual subnets via TCP/IP links. This allows an existing Ethernet infrastructure to serve as a backbone.

2.5   Software

A variety of software tools is available for planning, commissioning and documenting a LON system. This means that, whatever the requirements of the project or the level of training undergone by the commissioning engineer, there will always be an appropriate tool.

The LNS has established itself as the common network operating system and is used by all relevant tools. Subnet/node IDs, bindings, parameters, etc. can be defined and changed via LNS not only for each device, but also for the system as a whole.

The manufacturers provide specific data for the devices used in the system free of charge, in the form of application files, and input it into the LNS. As well as the standard configuration options provided by the commissioning tools, the majority of manufacturers also provide configuration tools (plug-ins) free of charge, which are integrated in the software tool, to make commissioning easier.

LNS plug-ins are available free of charge for all Wieland LON devices and can be used in an LNS environment of version 3 or higher.

2.6   Installation of the LNS Plug-In

2.6.1   System requirements

- PC/laptop with an LNS installation tool installed and a suitable interface for connecting to the LON system
- LNS version 3.x or higher with all available service packs
- Standard Device Resource Files (SDRF) version 12 or higher (available free of charge at www.lonmark.org)

2.6.2   Device and parameter description files (SDRF, UDRF)

Standard Device Resource Files (SDRF) version 12 or higher must be installed before installation of the plug-in. The user-defined description files (UDRF) that are required to display Wieland-specific parameters correctly are automatically copied and initialised when the Wieland plug-in is installed.

2.6.3   Availability

The Wieland LNS plug-in for the gesis LON R series of devices can be downloaded free of charge from the downloads area of the Wieland website (www.gesis.com).

It is recommended to download the current version before each new project.

2.6.4   Installation

To install the plug-in, please launch the "setup.exe" file and follow the on-screen instructions.

2.6.5   Installation routine

The installation routine automatically performs all the steps required to install the plug-in, register the Wieland parameter descriptions(UDRFs) and copy the device templates. The following default directories within the LonWorks basic directory (usually C:\LonWorks\) are used:

- The plug-in is installed in ..\PlugIns\Wieland Electric\WLD_GESISRC\
- The UDRFs are stored under ..\types\User\Wieland Electric\
- The device templates are stored under ..\import\Wieland Electric\

Following successful installation, a new program directory called "Plug-In for gesis LON R Devices" is created in the Windows Start menu, which can also be used for direct access to the manual (this document).

2.6.6   Registration in the Windows registry

The installation routine automatically enters the plug-in in the Windows registry. If the entry is not made automatically, it must be done manually before the LNS commissioning tool can be used. To do this, launch one instance of the plug-in directly via the Windows Start menu and select the "Register" button. The plug-in can then be registered using the procedure for individual LON projects, which is specific to each commissioning tool.

If the Wieland plug-in needs to be removed from the Windows registry, please launch the plug-in directly once again via the Windows Start menu and select "Unregister".

3   gesis LON R: System Overview

3.1   Selection of an Application Program

This manual refers to the application program with the file name WiRcGate1x.

3.2   Modules With No Mounting Feet

In order to achieve a minimum installation height of approximately 55 mm when installing modules in the gesis RAN pluggable distribution box, they are also manufactured without feet. These modules are installed in the gesis RAN in the factory using special equipment.

3.3   Place of Installation

The modules must be installed in a gesis RAN or similar housing. If a gesis RAN distribution box is used, the modules are installed by Wieland and wired to gesis CON series connectors. The distribution box is designed and manufactured in accordance with customer requirements, meaning it can be adapted to almost any conditions. The system/customer-specific planning and design of the distribution box also extends to labelling of the inputs and outputs. External connections are established using the gesis CON connector system. As terminal blocks, transformers and other similar devices can also be installed in these distribution boxes, this allows complete room functions to be created and efficiently integrated into the pluggable electrical installation.

4   gesis LON R-56/0 (RC)

4.1   Device Description

Designation	Basic module, LON coupling
Type/Art. No.	gesis LON R-56/0 (RC) 83.020.0320.0
	gesis LON R-56/0 (RC) B 83.020.0320.1
Device type	Basic module
Design type	Device with screw clamp terminals for installation in a gesis RAN distribution box

Please ensure that you pay strict attention to the warnings and notes in the sections entitled "Proper Use" and "Selecting Personnel and Personnel Qualifications" in Chapter 1.   **NOTICE**

4.2   Function

The gateway receives EnOcean telegrams and converts these into LON network variables (NVs). The gateway interprets the EnOcean telegrams ORG5 (RPS Type 1), ORG6 (1BS) and ORG7 (4BS), like those for example from EnOcean sensors, the Wieland alarm transmitter or the EnOcean window contact. The identification number (ID) of the sender is transmitted with these telegrams. Each sender has a unique ID which is checked by the gateway during receipt of a telegram.

Up to 170 sending channels can be stored on the input side and distributed to the 56 LON NVs.

The gateway needs an external power supply and an antenna for operation.   **NOTICE**

4.3 Dimensions, Connections and Function Elements
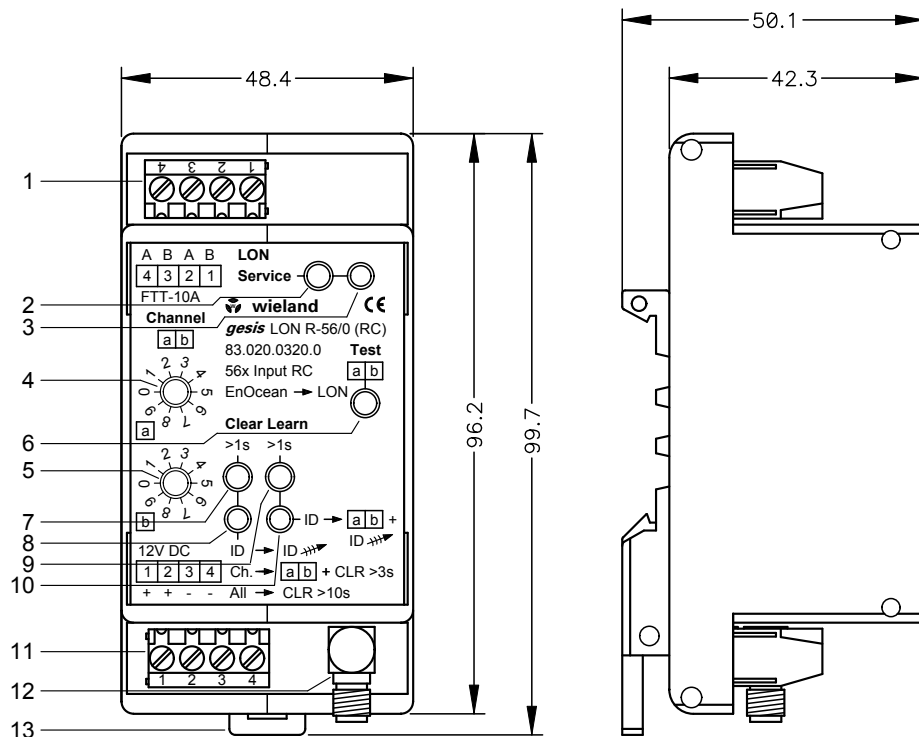
1 **LON bus connection**
2 **Service Pin** according to LONMARK
3 **Service LED (red)**: Light and flashing pattern according to LONMARK
4 **Channel selector switch**, tens position
5 **Channel selector switch**, units position

Example: Channel selector switch 4 on "1" and switch 5 on "7" produces channel 17. Valid settings are 0-55 (teach, delete and test functions), 99 (deletion of all assignments in the "Clear" mode). Other channel numbers have no function. Any channel can be set in operation.

6 **Button "Test"**

Set the channel selector switches 4 and 5 to the channel to be tested. If you now press the Test button, you initiate a reaction on the channels 0-55 in accordance with the parameterisation.

7 **Button "Clear"** (delete)
8 **LED "Clear" (red)**

Flashing: receipt of a telegram with unknown ID
Flashing: Clear mode active
Fast flashing:Warning about deletion of all assignments

9 **Button "Learn"** (Teach-in)
10 **LED "Teach-in" (green)**

Flashing: receipt of a telegram with known ID from
not taught-in channels
Flashing: Teach-in mode active

11 **Power supply** 12.5 V DC
12 **SMA antenna socket**
13 **Locking slide** (only for 83.020.0320.0)

4.4   Terminal Assignment

X1: Connection and routing of the LON bus; terminals 1/2 and 3/4 are bridged internally

1—LON B
2—LON A
3—LON B
4—LON A

X2: Connection and routing of the operating voltage; terminals 1/2 and 3/4 are bridged internally

1—Operating voltage 12.5 V DC SELV +
2—Operating voltage 12.5 V DC SELV +
3—Operating voltage 12.5 V DC SELV −
4—Operating voltage 12.5 V DC SELV −

gesis LON R-56/0 (RC)

4.5   Technical Data

Wireless technology	
Technology	Use of the EnOcean protocol
Frequency band	868.3 MHz
Range	
– Line of sight	Typically 30 m in corridors; up to 100 m in halls
– Plasterboards / wood	Typically 30 m through max. five walls
– Brick/aerated concrete walls	Typically 20 m through max. three walls
– Reinforced concrete walls/ceilings:	Typically 10 m through max. one ceiling
Significant restriction of the range (up to shielding of the radio signal):	
Insulation wool on metal foil, suspended ceilings or elevated floors and panels made of metal or carbon fibre, lead glass or glass with metal coating, steel furniture, mounting of the switch on metal. Fire protection walls, lift shafts.	
Stairways, supply and similar areas should be sealed off. The angle at which the radio signals meet a wall also has a role to play. The effective wall thickness and, therefore, the signal attenuation will vary depending on the angle. Where possible, the signals should meet a wall at a slight angle; wall alcoves should be avoided.	
Bus connection	
Connection type	Screw clamp terminals
Connection cross-section	0.14 to 4 mm², single-core
	0.14 to 2.5 mm², finely stranded
	6.5 mm stripped in each case
Operating voltage	12,5 V DC (-15 %/+10%) SELV
Rated current	80 mA
Antenna connection	SMA socket
Impedance	50 Ω
Antenna	suitable for 868.3 MHz; the Wieland antenna is recommended; see ordering instructions
Electrical safety	
Protection class	none (depends on subsequent work)
Degree of protection	IP 00; according to installation in gesis distribution box: min IP20
Degree of soiling	2
Surge voltage category	III
EMC requirements	conforms to EN 61000-6-2/-6-3 and EN 50090-2-2
Operating conditions	
Field of application	For installation in gesis distribution boxes, which are in turn intended for fixed installation in interior and dry areas
Temperature ranges	
– Operating environment	−5 °C to 45 °C
– Storage	−25 °C to +70 °C
relative humidity	5% - 93%
Moisture condensation	not permitted
Climate resistance	according to EN 50090-2-2
General data	
Housing material	Plastic, halogen and phosphorous-free
Housing colour	black
Behaviour in fire	V2 according to UL 94 (housing)
Thermal load	approx. 3 kWh
Approval	LONMARK-compliant
Weight	approx. 110 g
Dimensions	see "Dimensions, Connections and Function Elements"
CE marking	according to EMC Directive (residential and functional buildings), Low Voltage Directive

4.6 Installation

- The flat cable must only be connected or disconnected when the power is off.
- When connecting and disconnecting the flat cable, you must ensure that no power is being supplied to the basic module.
- The maximum length of the flat cable (120 mm) must not be exceeded.
- When looping through the voltages, the maximum current of 16 A must not be exceeded.

CAUTION

4.6.1 Assembly (83.020.0320.0)

1. Latch the module onto the DIN rail.
2. Connect the power supply and the LON bus.
3. Connect the antenna to the SMA socket.

4.6.2 Dismantling (83.020.0320.0)

4. Disconnect the module from the power supply.
5. Undo the connections at the terminal strips.
6. Insert a screwdriver into the locking slide and release the module from the DIN rail.

4.6.3 Replacing modules (83.020.0320.1)

7. Disconnect the power supply from the module.
8. Remove the flat cable from the front of the device.
9. Undo the connections at the terminal strips.
10. Slacken the knurled-head screws in the gesis RAN housing (see Fig.
11. Push the slide towards the modules as shown
    ("1": slide closed; "2": slide open).
    Notice: This will release all the modules.
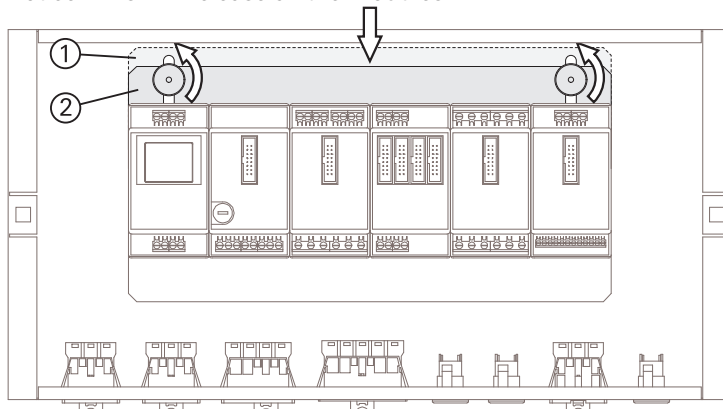
12. Replace the relevant module.
13. Reattach the modules by following steps 1 to 5 in reverse order.

4.7 Accessories

Power supply gesis RM-PS	83.020.0401.0
Power supply gesis RM-PS B	83.020.0401.1
Antenna	83.020.0503.0

5   Installation of the LNS Plug-In

The LNS Plug-In can be installed using the WLD_GESISRC_Setup.exe installation file. The requirements are an existing LNS version 3.08 or higher and installed Standard Device Resource Files (SDRFs) of version 12 or higher (available at www.lonmark.org).

The setup program installs the LNS Plug-In, the Wieland-specific Device Resource Files (UDRFs) and the device template (XIF and APB in the directory: ...\LonWorks\import\Wieland Electric\WLD_GESISRC). It registers the plug-in in the registry automatically. A system restart may be required after the installation of the plug-in.

After successful installation, the plug-in can be registered in the LNS integration tool. In doing so, the device template is created automatically.

6   Teach-in of the sensors

The teach-in of the sensors can be performed at any time. However, it is recommended to not teach in the sensors until after the LON commissioning. A detailed description for this can be found in the technical documentation for this module (at the end of this document).
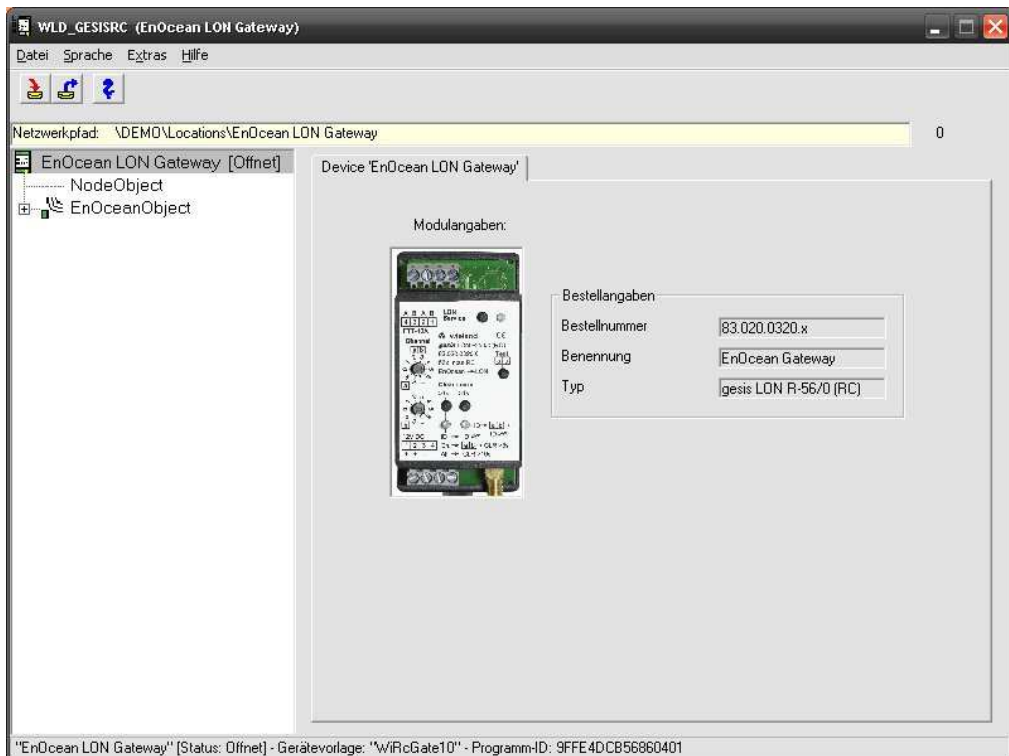
7 Parameterisation

7.1 General

Wieland Electric recommends the parameterisation using the LNS Plug-In; however it can also be performed directly in the LNS Tool.

The application is implemented with a static XIF file with dynamic network variables.

The module, together with order number, designation and type, are displayed in the start window:

Start window

If changes have been made to the parameterisation, these must be stored in the LNS using the "Save in LNS* button (top left, with red arrow).

Until the changes are saved, these are highlighted by being displayed in red. A change counter in the top right area of the LNS Plug-In shows the storage still remaining to be done.

The buttons "Store in LNS" and "Load from LNS" are visible on every screen and can be used directly. The individual parameterisation areas are selected by clicking in the tree structure on the left.
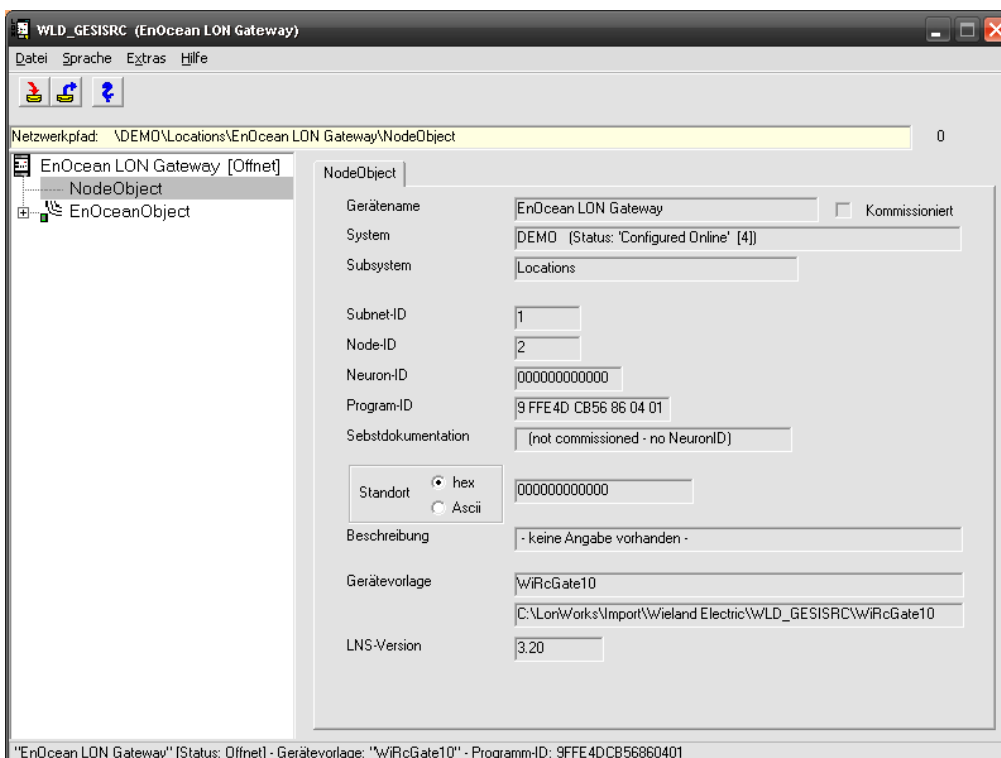
7.2   NodeObject
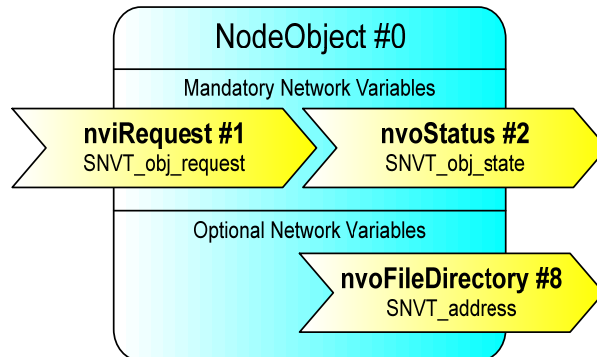
The NodeObject (Object_ID: 0) is used in a LONMARK-compliant LON application to manage other LONMARKobjects present in the node. If implemented, it always receives the FB_ID: 0, i.e. it is the first object in the node. Only one such object may be present in each node.

   In the application described here, only a minimal implementation of the functionality in accordance with LONMARK has been made, i.e. the NodeObject is only used to test the node's communication capability.

   The status of a particular function block in the node is requested via RQ_UPDATE_STATUS. If the ID of the NodeObject is used in the request as the Object_ID, the status of the entire node and of all the function blocks that are present is reported by means of nvoStatus.
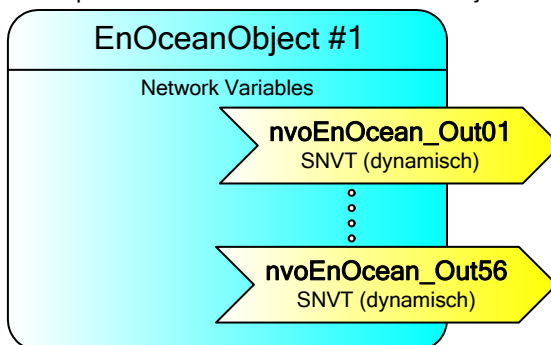

NodeObject

The relevant data for the LNS are displayed in the NodeObject area of the LNS Plug-In; this cannot be parameterised.

Parameterisation

7.3 EnOcean-Objekt

The complete ENOcean LON implementation is combined in one object. It has more than

56 dynamic network variables whose types are automatically adapted to the function specified by the parameterisation.

In the case of parameterisation as sensor input, a network variable for, e.g. the lighting control, of the type `SNVT_switch` is set and one of the type `SNVT_setting` for the shutter control. If physical data are received, the corresponding SNVTs are also stored in the LNS.

All **profiles** (as of July 2007) of the EnOcean Alliance are stored in the software as templates. Adjustments (e.g. for the valid temperature range or the resolution) can be parameterised in the LNS Plug-In.

Notice

Due to the high number of network variables, it is recommended to rename the network variables according to the functionality and assignment used. This makes the use significantly easier for the following binding with the LNS Tool and results in clearer documentation. Corresponding input fields are present on every corresponding parameterisation screen of the LNS Plug-In.

When using multiple channel room control panels, several radio channels can be combined in one panel in the overview window of the EnOcean object for simplification.

An overview of the already parameterised radio channels is also displayed in the top area on this screen. Thus, you can see at a glance how many reserves are still available for other sensors.
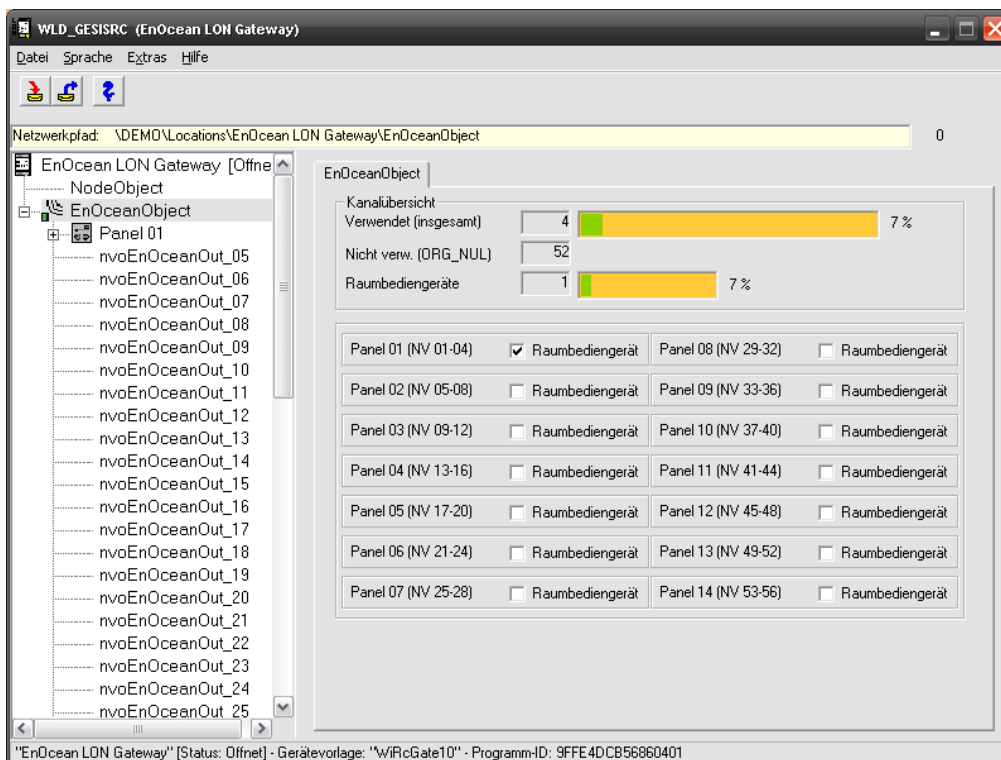
If a new panel is applied in the overview window (by setting the corresponding check mark), an additional window is displayed where the panel type can be selected.
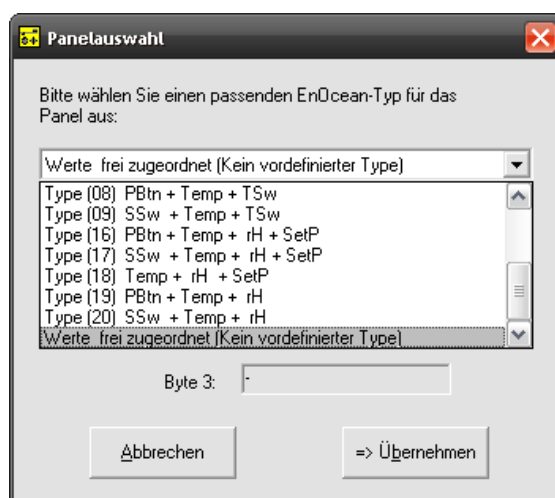
The type numbers displayed there correspond to the type numbers of the ENOcean profiles and should be stated in the documentation of the room control panel. Otherwise, the short descriptions after the type number can be used for orientation. The abbreviations in the list have the following meanings:

- PBtn – Presence button
- Temp – Temperature value of the internal sensor
- SetP – Setpoint controller
- TSw – Fan stage
- SSw – Slide switch
- rH – relative humidity

Parameterisation

After you have clicked on "Apply", the selected network variables are combined into one panel in the tree structure. If you clear the check mark in the overview window again, this combination will be undone again.

7.4   Panel

By selecting a panel in the tree structure, you can change the assignment of the individual radio channels and their function at any time.
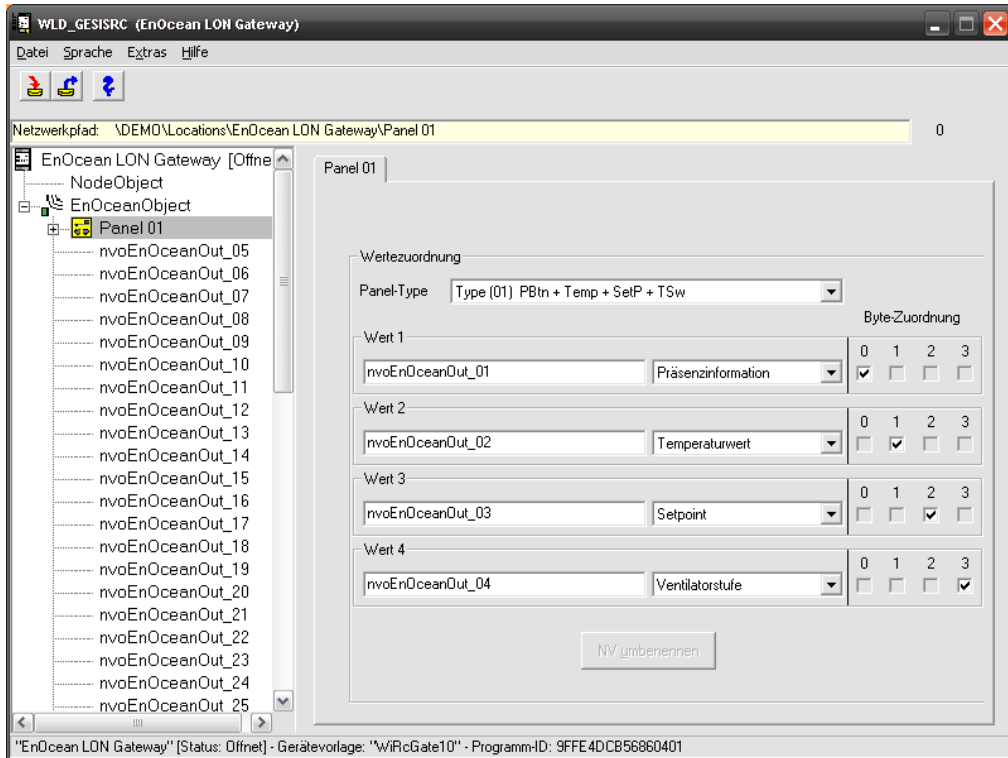
The combination of the network variables into one panel only provides better clarity and simplified parameterisation. It can only be performed in blocks of four whereby only the blocks (channels 1-4, 5-8, etc.) displayed in the overview can be formed.

Depending on the panel used, the teach-in of the radio channels is also simplified via this block formation whereby all four channels can be stored in one step.

You can select the EnOcean Profile Type under **Panel Types**; optionally, you can also select a user-defined type.

A new, function-related name can be granted under the values 1-4 for each of the assigned network variables which improves the processing for the binding. You must confirm a change by pressing the **Rename NV** button. You can also adjust the functionality of the individual channels later.

In the **Byte Assignment** area, you change the assignment of the data bytes sent to the network variables. The standard settings correspond to the requirements of the respective EnOcean profile.

7.5   Parameterisation of individual sensors

You can freely set the functionality of the network variables by selecting an individual network variable in the tree structure. First, select the type of the transmission element from a list of predefined values.
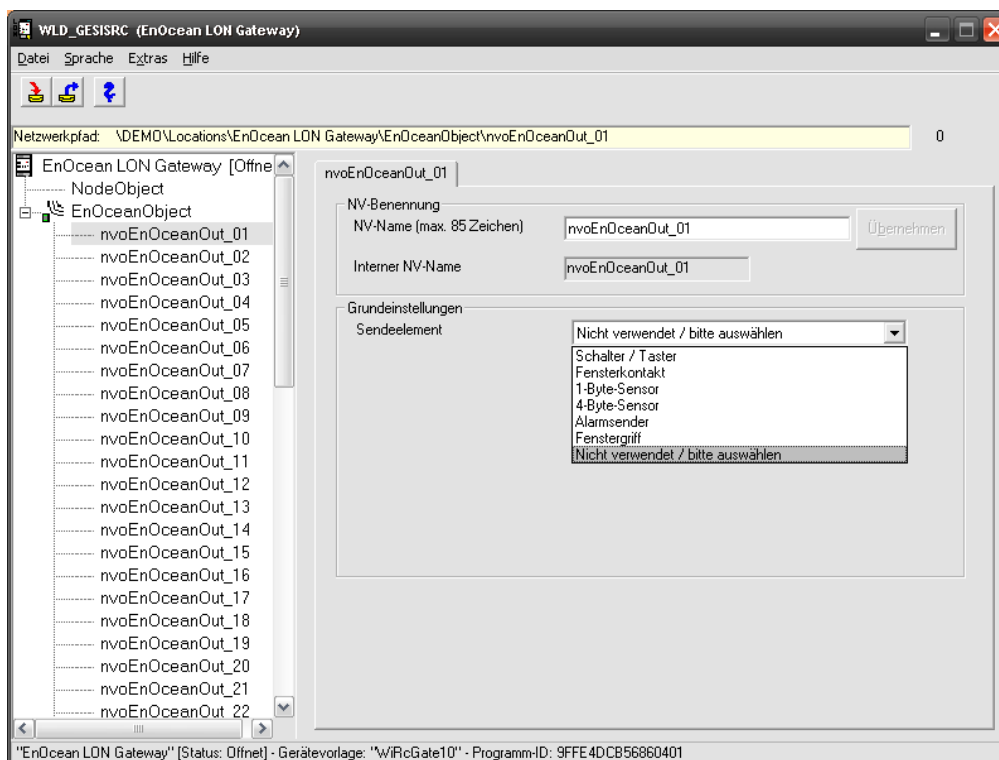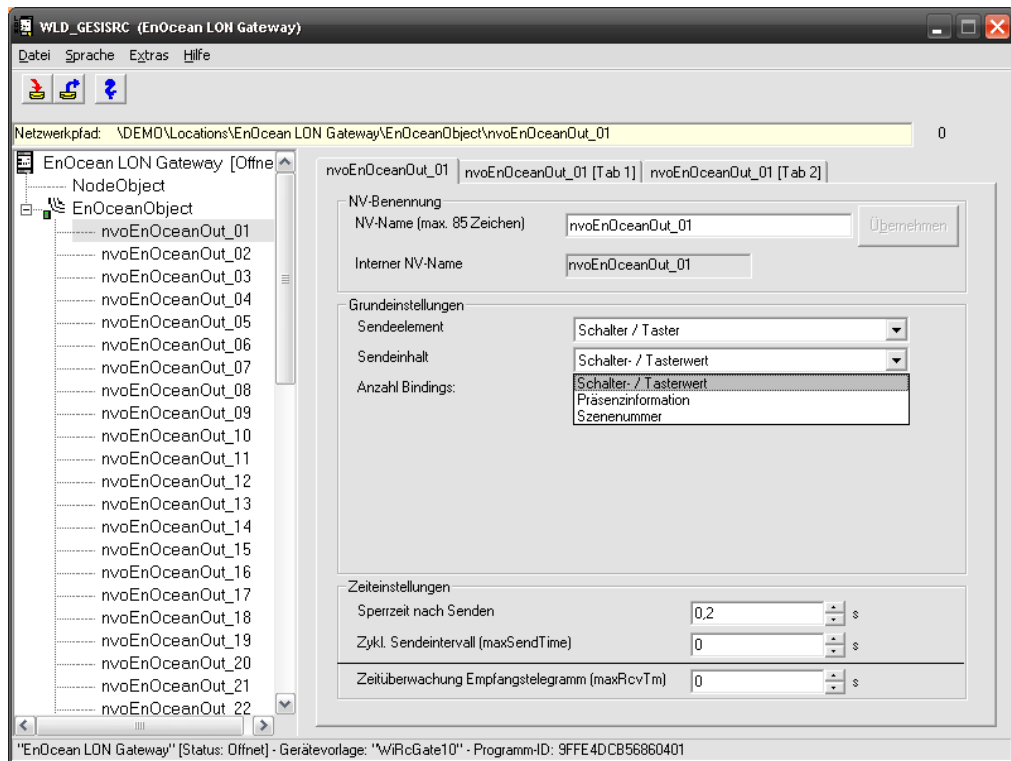
The following values are available:

- Switch / Button
- Window contact
- 1-byte sensor
- 4-byte sensor
- Alarm transmitter (Wieland-specific)
- Window handle

After the sender type has been selected, other parameters and tabs are displayed in the right-hand parameterisation area of the plug-in which are described in the following.

Parameterisation

7.5.1 Button / Switch transmission element

After you have selected the **Switch / Button** transmission element, you can roughly specify the functionality in the **sending content** area in the first step. The **Switch / Button value**, **Presence Information**, **Scene Number** values are available. This preselection limits the other parameterisation options as far as is necessary and determines which other settings windows will be displayed.

You determine the sending behaviour of the network variables in the bottom area.

### 7.5.1.1 Switch / Button transmission element (Switch / Button value)

Due to the very different applications of this transmit type, the possible settings are very extensive. The plug-in supports you during the parameterisation using function template which correspond to those for LONMARK specified profiles.

The functionality can be selected from a list in the Input Function area. The type of the sensor (switch or button, single-face or double-face) and the use are parameterised here. The following predefined values are available:

- Button, single-face (switching)
- Button, double-face (switching)
- Button, double-face (dimming)
- Button, single-face (dimming)
- Button, double-face (shutter), with end angle*
- Button, double-face (shutter), without end angle
- Button, single-face (edge control)
- Set value

*the corresponding functionality must be supported by the shutter actuator used (e.g. Wieland *gesis* RM-0/2W SI, 83.020.0404.0 or Wieland *gesis* RM-0/2W DC, 83.020.0407.0) The plug-in performs all other settings automatically and adapts the corresponding parameters to the underlying LONMARKprofiles.

The input can be inverted in the bottom area. You can also change the network variable type in order, for example, to realise comfortable dimming using the `SNVT_setting`. The Power-Up / Reset behaviour can also be set here.
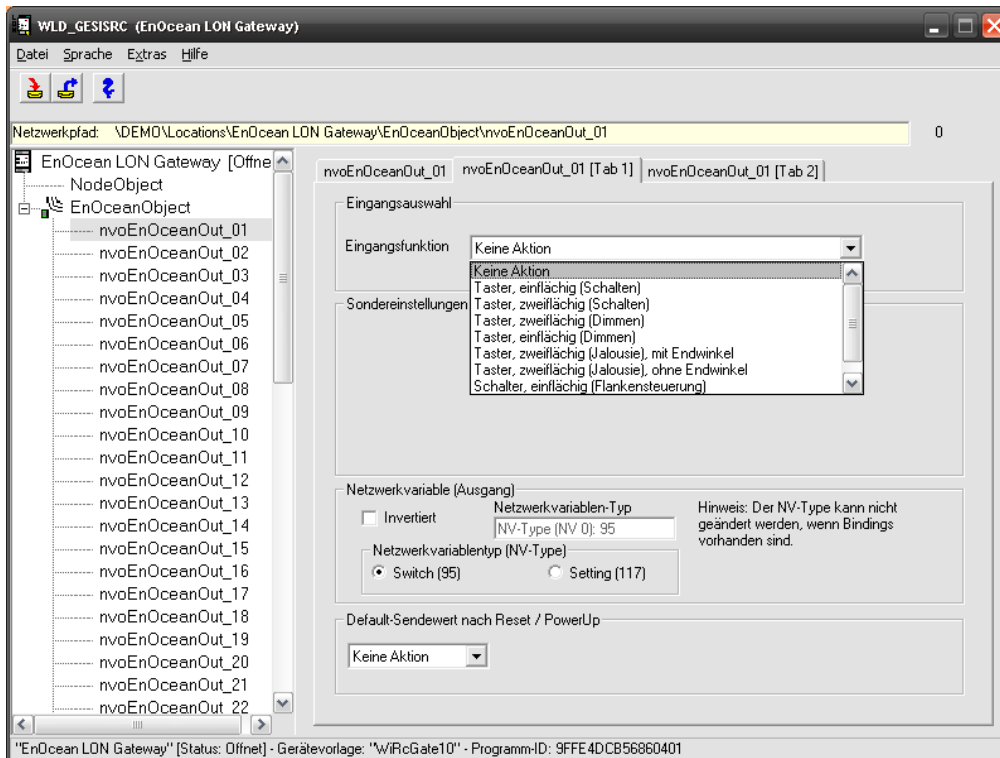
Switch / Button (Tab 1)

Actuators which are not LONMARK-compliant can also be controlled by explicitly setting the complete transmit behaviour of these network variables in another parameterisation window.
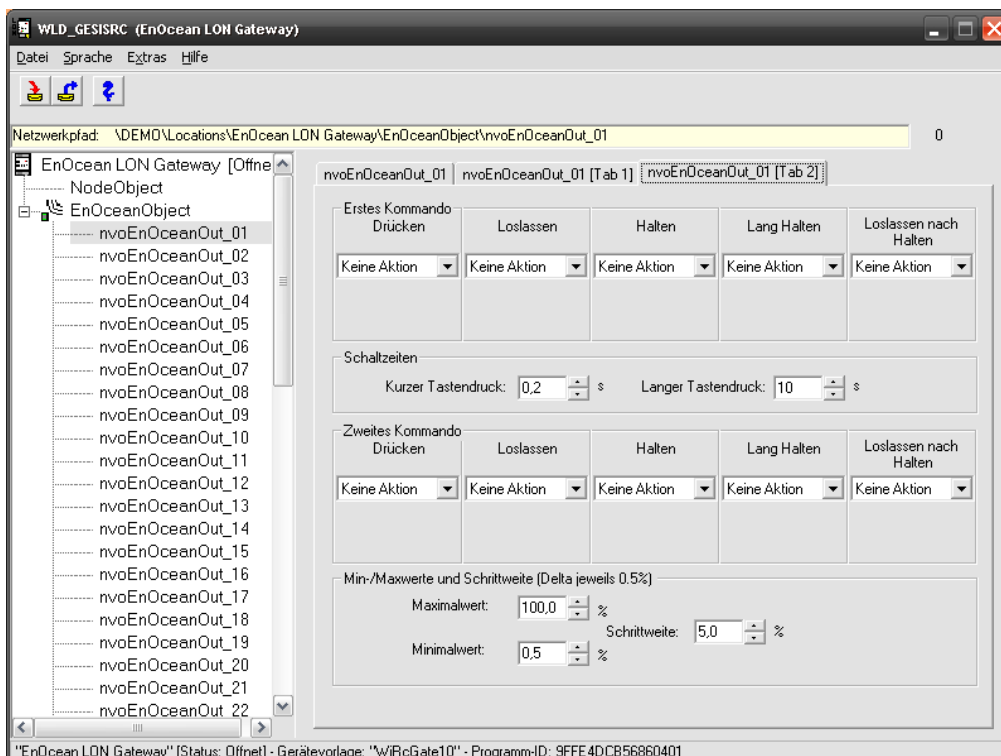
Switch / Button (Tab 2)

Parameterisation

Up to five different telegrams per button press can be parameterised here which are triggered depending on the timeline of the button press. Thereby, the timeline is defined as follows:

- Press   telegram which will be sent directly when the contact is closed
- Release   telegram which will be sent after opening of the contact before expiry of the time defined under **Short button press**
- Hold   telegram which will be sent if the contact remains closed for a time longer than defined under **Short button press**
- Long Hold   telegram which will be sent if the contact remains closed for a time longer than defined under **Long button press**
- Release after hold telegram which will be sent after opening of the contact after expiry of the time defined under **Long button press**

In the case of single-face functionality, a first and a second button press are also differentiated in order to be able to realise a toggle function. The following values are available:

- Off   Switch lighting
- On   Switch lighting
- Down   Dim lighting, shutter
- Up   Dim lighting, shutter
- Stop   Shutter
- Down to end angle Move shutter down with end angle control*
- Reference movement   Shutter reference movement for the automatic travel time determination**
- INVALID   an invalid command (e.g. for release of prioritisations) is transmitted

*the corresponding functionality must be supported by the shutter actuator used (e.g. Wieland *gesis* RM-0/2W SI, 83.020.0404.0 or Wieland *gesis* RM-0/2W DC, 83.020.0407.0)
**the corresponding functionality must be supported by the shutter actuator used (e.g. Wieland *gesis* RM-0/2W SI, 83.020.0404.0)

The maximum and the minimum value of a dimming telegram and the dimming step size can be specified here in the bottom area.

7.5.1.2 Switch / Button transmission element (presence information)
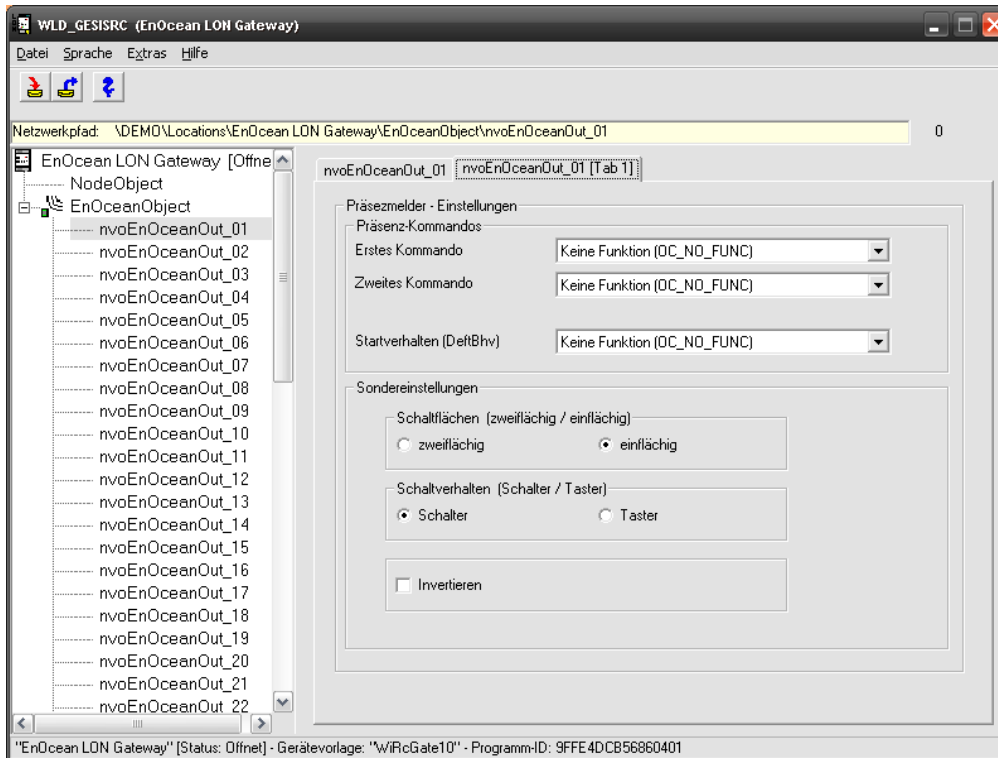
Different presence commands for the first and second button press can be defined here. The following values are available:

- Occupied   transmits a OC_OCCUPIED for the status **occupied**
- Unoccupied   transmits a OC_UNOCCUPIED for the status **unoccupied**
- Special operation   transmits a OC_BYPASS for the status **comfort extension**
- Temporarily unoccupied transmits a OC_STANDBY for the status **Temporarily not occupied**
- Invalid   transmits a OC_NUL for the release of prioritisations

The start behaviour can also be set, the type of the control (single-face or double-face, switch or button) determined and an inversion of the input signal parameterised.

Parameterisation

7.5.1.3   Switch / Button transmission element (scene number)

Scene number (Tab 1)
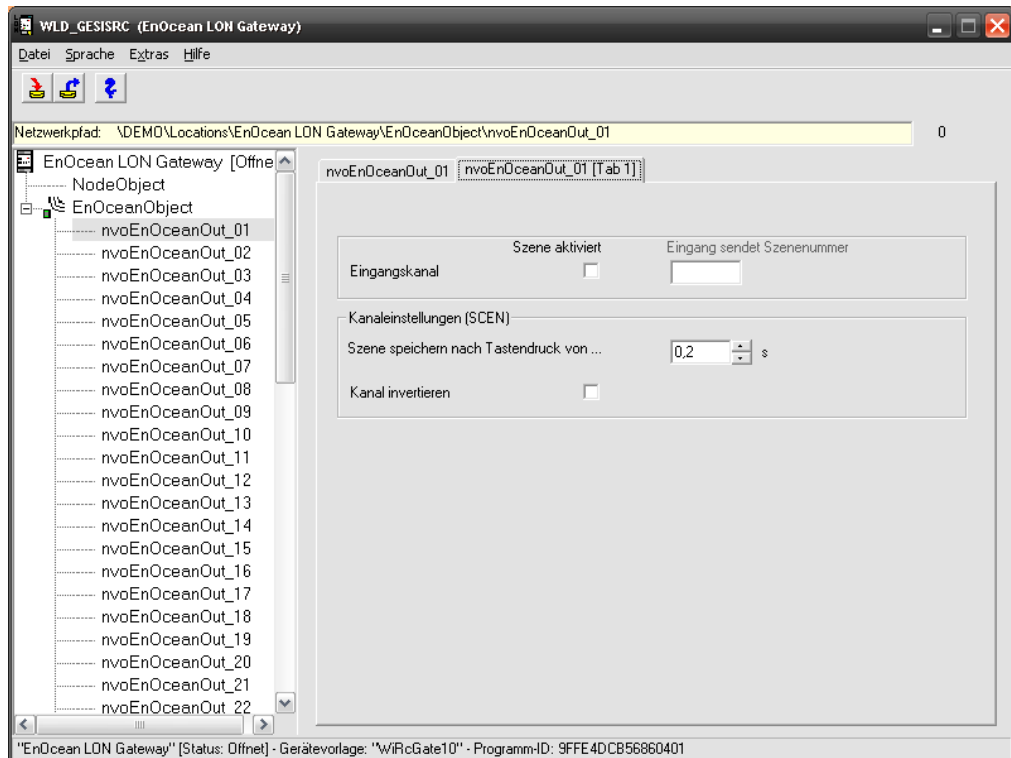
The scene number to be transmitted is specified here. The scene must also be activated first.

The input can also be inverted and the time which should be evaluated as Long Button Press must be specified. A long button press then transmits a scene teach-in telegram (`SC_LEARN`). After the commissioning, it is recommended to parameterise a value between three and five seconds here in order to prevent unwanted scene changes by the user.
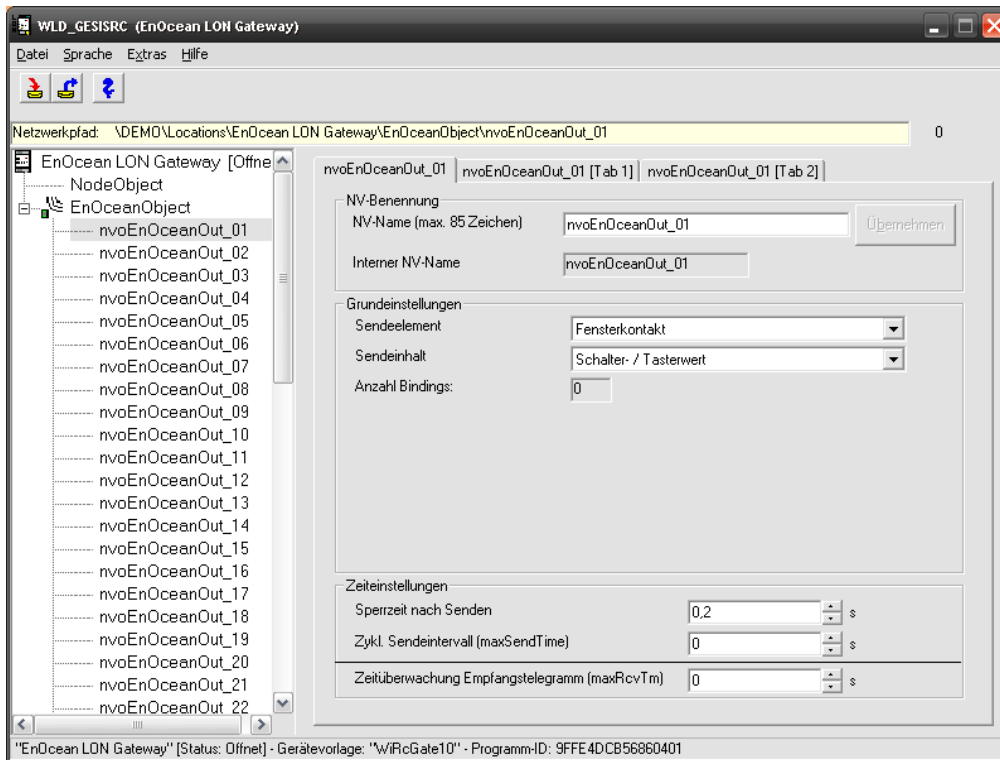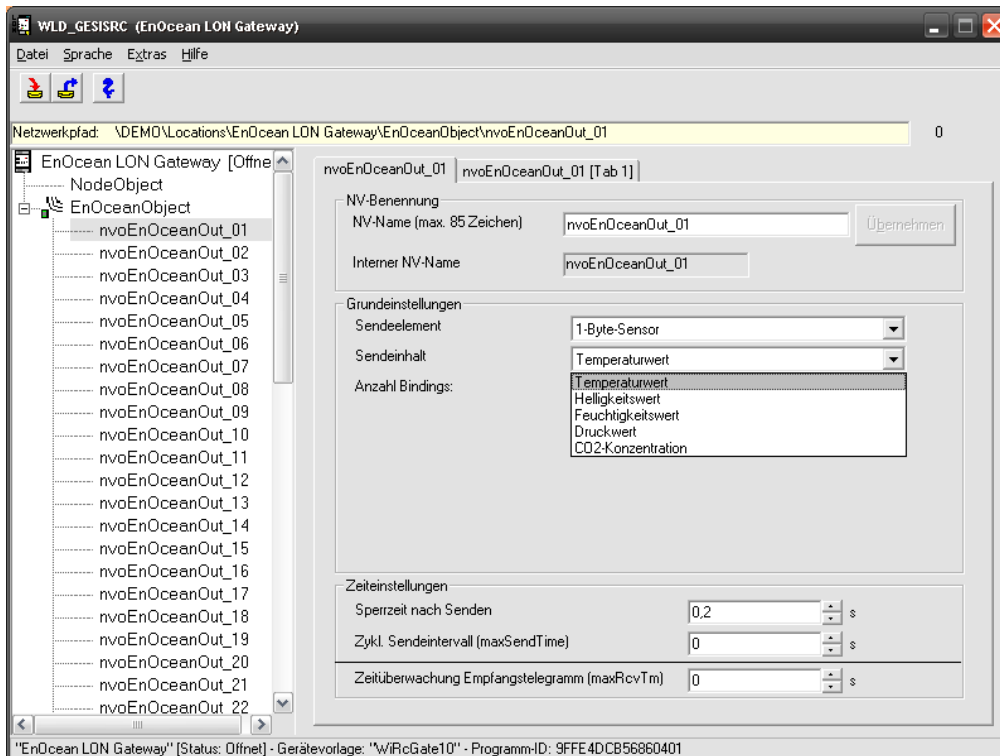
7.5.2 Window contact

The parameterisation of the **window contact** transmission element is identical to the parameterisation of the **Switch / Button** element and is described there.

7.5.3 1-byte sensor

Parameterisation

The 1-byte sensor measures physical data. You must specify the type of the measured value here. Depending on this, you can select the measuring range in the second window. The following physical factors can be parameterised:

- Temperature value   SNVT_temp_p
- Brightness value   SNVT_lux
- Humidity value   SNVT_lev_percent
- Pressure value   SNVT_press
- CO_2concentration   SNVT_ppm

Thereby, the network variable type is automatically adjusted to the parameterised physical factor. For this reason, the parameterisation is only possible for **not connected** network variables.

The transmit behaviour of the network variables can be parameterised in the bottom area of the window.

7.5.3.1   1-byte sensor (temperature value)

1-byte sensor temperature value (Tab 1)
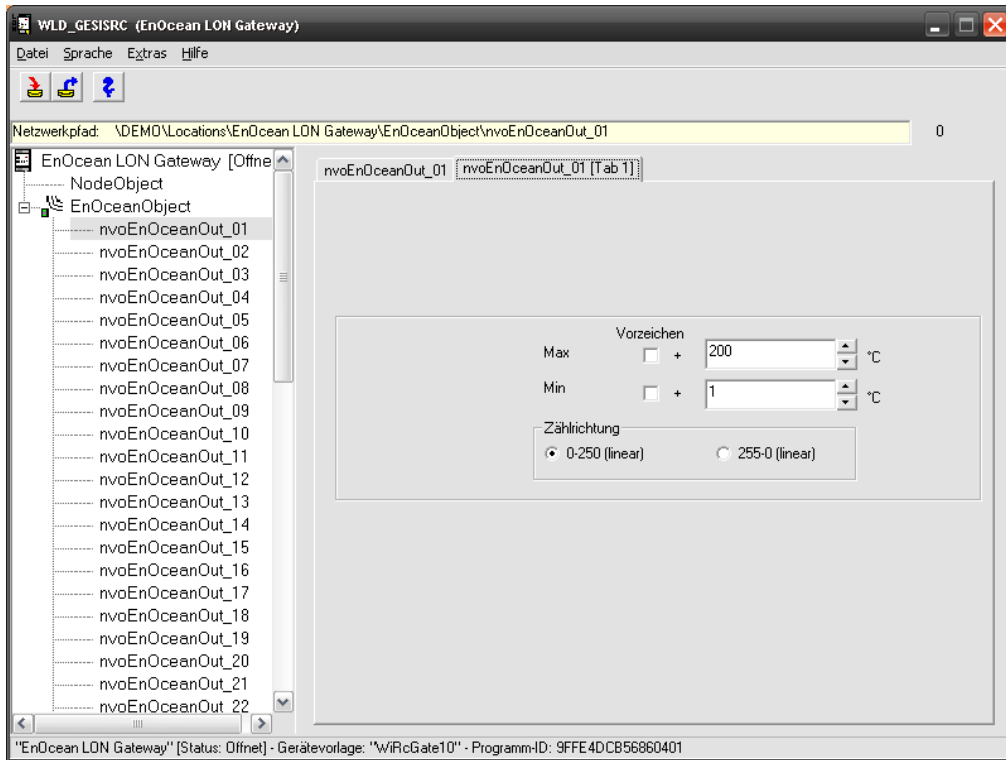
When a temperature sensor is used, the measuring range of the sensor can be specified on the second screen (Tab 1). A negative value is input by setting the "leading sign" check mark. The counting direction can also be adjusted for the sensor used.

7.5.3.2   1-byte sensor (brightness value)
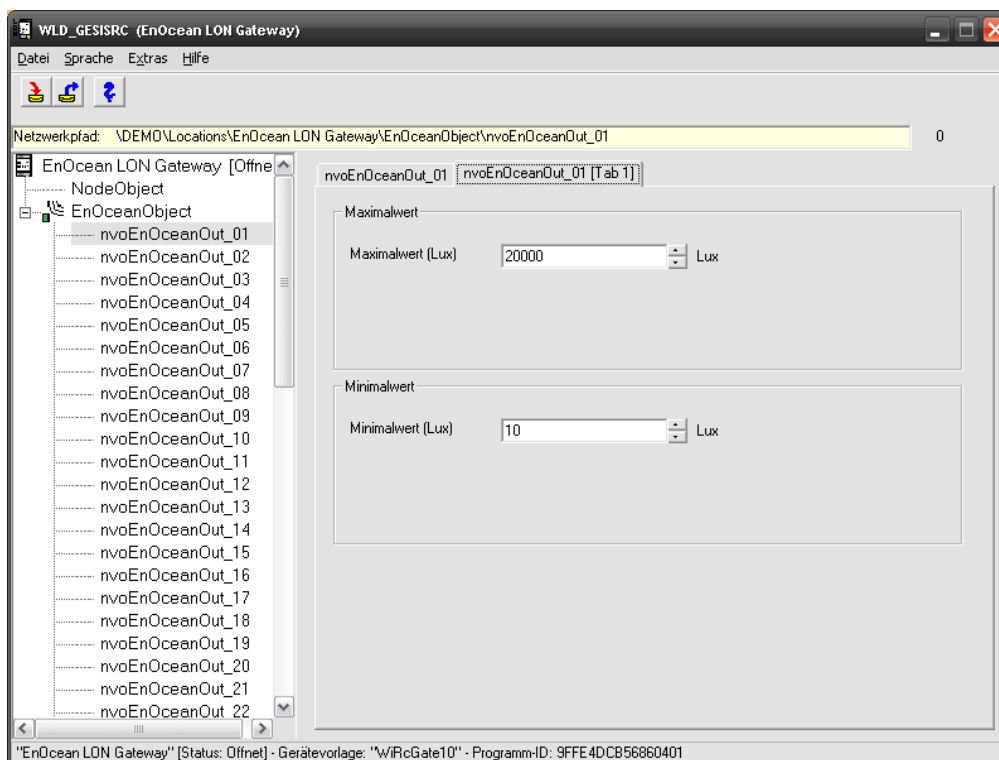
When a brightness sensor is used, the measuring range of the sensor can be specified on the second screen (Tab 1).

7.5.3.3   1-byte sensor (other)

The sensor types CO_2 and `pressure` are present in the selection, however with no function.

Notice

Parameterisation

7.5.4 4-byte sensor

4-byte sensor

The 4-byte sensor is parameterised analogously to the 1-byte sensor. In addition, the position of the active byte in the telegram must be specified.
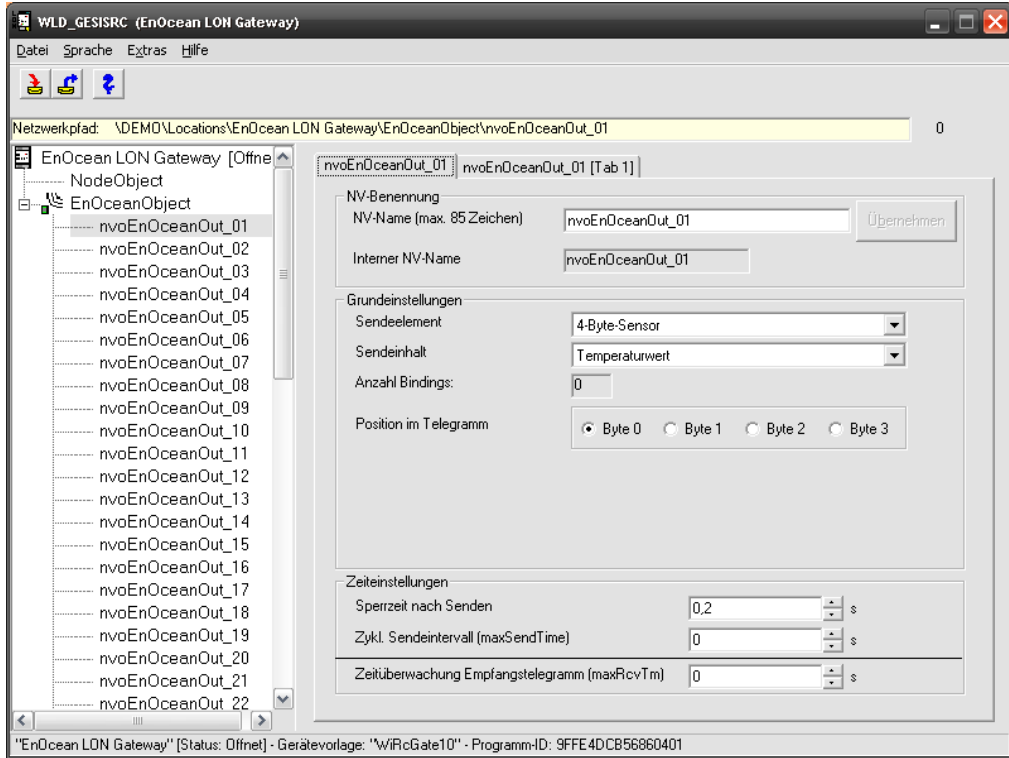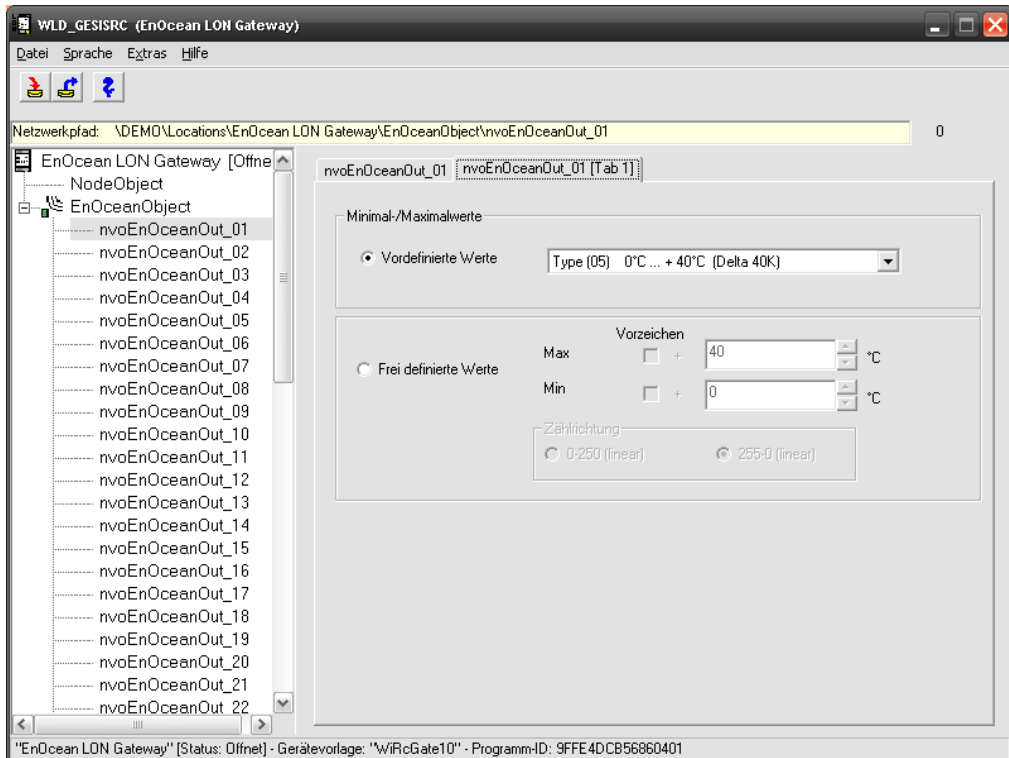
7.5.4.1 4-byte sensor (temperature value)

4-byte sensor temperature value (Tab 1)

When using a temperature sensor, predefined measuring ranges according to the EnOcean profiles can still be accessed on the second screen (Tab 1) in addition to the parameters already described.

7.5.4.2   4-byte sensor (brightness value)

The 4-byte sensor (brightness value) is parameterised analogously to the 1-byte sensor (brightness value).

7.5.4.3   4-byte sensor (other)

The sensor types CO_2 and `pressure` are present in the selection, however with no function.	**Notice**

7.5.5   Alarm transmitter
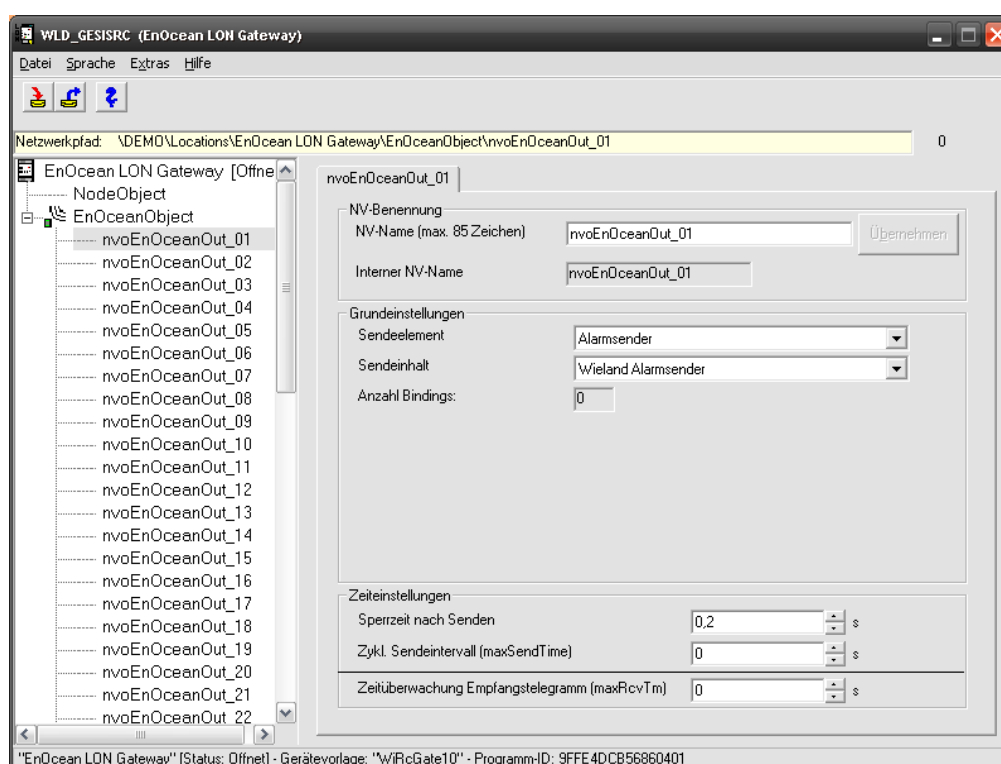
Alarm transmitter

The Wieland alarm transmitter (83.020.0502.0) is a special module for the control of wireless shutter actuators. The alarm transmitter produces a cyclical telegram with the current status of its potential-free inputs (e.g. conventional wind or rain sensor). As a result, in the case of a purely wireless-based system, the shutter actuators also move to the security position in the case of failure of the alarm transmitter.

Only the transit behaviour can be parameterised here.

The alarm transmitter is only used rarely in a LON network; a LON-based weather station is usually accessed here. The implementation of the Wieland alarm transmitter in this gateway is only used for completeness.

Parameterisation

7.5.6 Window handle
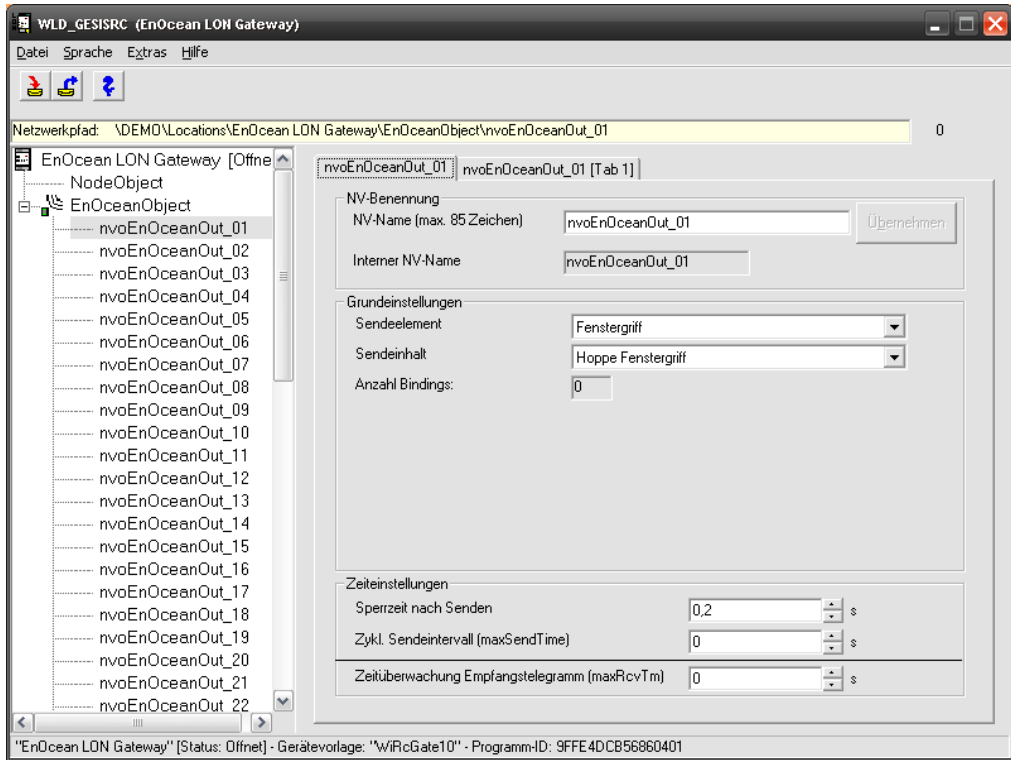
The transmit behaviour of the output variables can be set for the **window handle** transmission element.
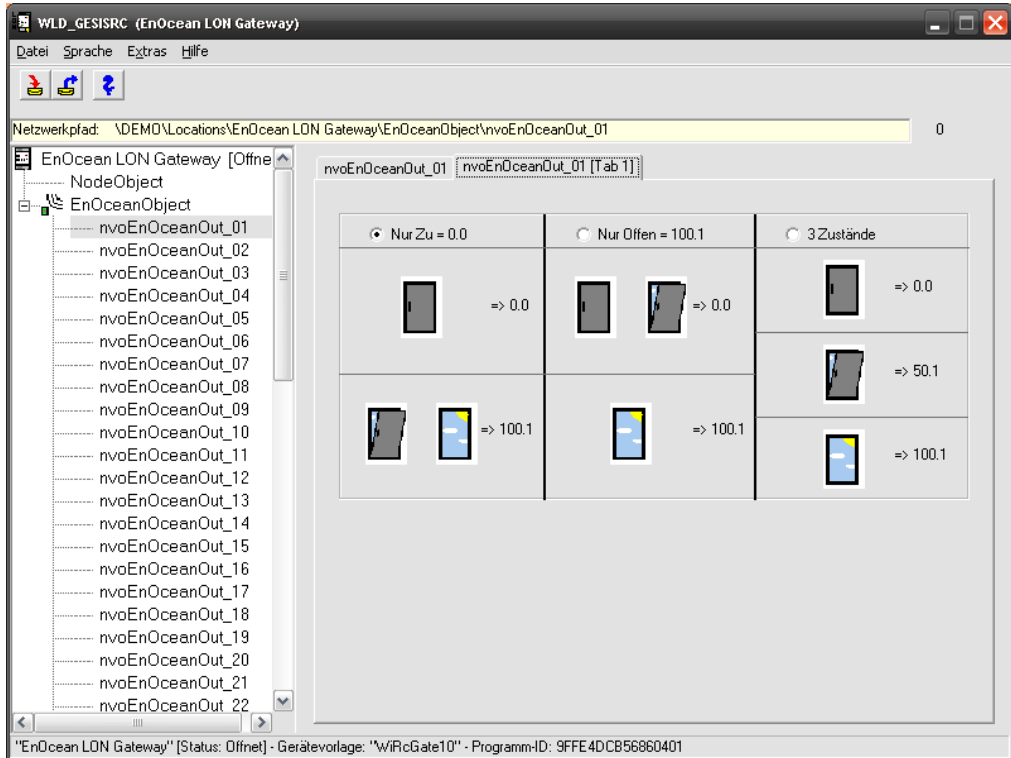
The value of the switch output variables can be parameterised, depending on the application (window monitoring, heating or break-in, and/or special solution) on the second screen (Tab 1).

- Closed only = 0.0   "0; 0" is only transmitted if the window is closed window monitor-
  ing heating / break-in
- Open only = 100.1   "100; 1" is only transmitted if the window is open window moni-
  toring break-in
- 3 Statuses   Special function; "50; 1" is transmitted when the window is tilted

8   Operation

Before you can teach-in transmitters to buttons and other controls, the configuration of the device with the LNS Plug-In must be completely finished. Document the assignments to the channels.

The button numbers stated refer to the illustration on page 14.

8.1   Teach-in of transmitters (Learn; e.g. button)

1. Set the required LON-NV number (0-55) using the channel selector switches (4,5).
2. Check the assigned reaction in the LON network using the Test button (6).
3. Press the Learn button (7) and keep it pressed for longer than three seconds; the green LED (10) flashes.
4. Let the transmitter to be taught-in transmit three times within two seconds (e.g. press the button three times in succession).
5. If the radio signal corresponds to the type parameterised with the LNS Plug-In, it will be taught-in on the channel set by the channel selector switches.
6. The gateway exits the programming mode automatically and the green LED (10) goes out.
7. Test whether the required function is correct after the teach-in.

You can teach-in other transmitters in the same way.

8.2   Deletion of assignments (Clear)

The LON bus and power supply must be present for the deletion. There are three deletion variants:

1. Deletion of a single ID from the complete gateway.
2. Deletion of all ID's from a channel.
3. Deletion of all ID's from all channels, restoration of the factory settings.

8.2.1   Variant 1: Delete a single ID

1. Press the Clear button (7) and keep it pressed for longer than three seconds; the red LED (8) flashes.
2. Transmit an ID three times within two seconds (e.g. press a button three times in succession) and this ID will be deleted from all channels.
3. The gateway exits the clear mode automatically and the green LED (8) goes out.
4. Check and document the changes.

8.2.2   Variant 2: Delete all IDs from one channel

1. Set the channel to be cleared using the channel selector switches.
2. Press the Clear button (7) and keep it pressed for longer than three seconds; the red LED (8) flashes.
3. Press the Clear button (7) again and keep it pressed for longer than three seconds. This deletes all IDs from the channel.
4. The gateway exits the clear mode automatically and the red LED (8) goes out.
5. Check and document the changes.

8.2.3 Variant 3: Delete all IDs from the gateway (restore factory settings)

1. Set the value "99" using the channel selector switches (4, 5).
2. Press the Clear button (7) and keep it pressed for longer than three seconds; the red LED (8) flashes.
3. Press the Clear button (7) again and keep it pressed for longer than ten seconds. This deletes all IDs from the gateway.
4. The gateway exits the clear mode automatically and the red LED (8) goes out.
5. Check and document the changes.

9 Power supply gesis EIB RM-PS

9.1 Device Description

Designation	Power supply
Type, model no.	gesis RM-PS 83.020.0401.0
	gesis RM-PS B 83.020.0401.1
Device type	Power supply
Design	Device with screw clamp terminals for installation in a gesis RAN distribution box

NOTICE

Please ensure that you pay strict attention to the warnings and notes in the sections entitled "Proper Use" and "Selecting Personnel and Personnel Qualifications" in Chapter 1.

9.2 Function

The power supply provides the power that is used to operate the basic module. The extension modules connected to the basic module using the flat cable also receive the current required for switching the relays from this power supply. The output voltage is a 12 V DC safety extra-low voltage (SELV).

CAUTION

If you are using the basic module with four extension modules of type RM-0/2W SI (83.020.0404.0/83.020.0404.1) or RM-0/2W DC (83.020.0407.0/83.020.0407.1) for shutter control, the power supply RM-PS 12/5 (83.020.0421.0/83.020.0421.1) must be used.

9.3 Dimensions, Connections and Function Elements
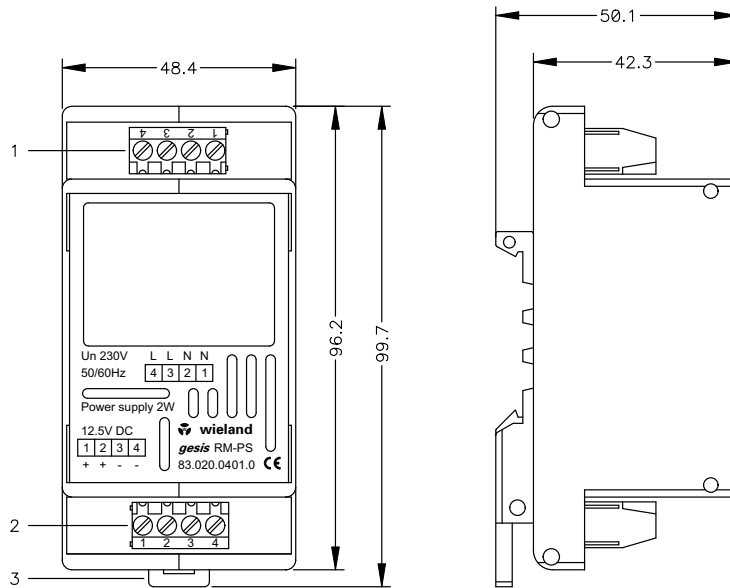
1 X1: Terminal strip for connecting the operating voltage
   (see "Terminal Assignment" for details)
2 X2: Terminal strip for connecting the output voltage
   (see "Terminal Assignment" for details)
3 Locking slide (only for 83.020.0401.0)

9.4 Terminal Assignment

X1: Connection and routing of the operating voltage; terminals 1/2 and 3/4 are bridged internally

1 — Operating voltage 230 V AC N
2 — Operating voltage 230 V AC N
3 — Operating voltage 230 V AC L
4 — Operating voltage 230 V AC L

X2: Connection and routing of the output voltage; terminals 1/2 and 3/4 are bridged internally

1 — Output voltage 12.5 V DC SELV +
2 — Output voltage 12.5 V DC SELV +
3 — Output voltage 12.5 V DC SELV
4 — Output voltage 12.5 V DC SELV

9.5 Technical Data

Controls	none
Indicators	none
Inputs/outputs	
Connection type	Screw clamp terminals
Connection cross-section	0.14 – 4 mm², single-core
	0.14 – 2.5 mm², finely stranded
Input	
Operating voltage	230 V AC, +6 % / -10 %, 50/60 Hz

Output (connection to basic module)	
Rated voltage	12,5 V DC SELV
Rated current	160 mA
Number of modules that can be connected (max.)	one basic module plus four extension modules; any peak loads occurring with central commands are buffered.
Electrical safety	
Protection class	none (depends on subsequent work)
Degree of protection	IP00, min. IP20 following installation of module in ge-sis® RAN distribution box
Degree of soiling	2
Surge voltage category	III
Rated insulation voltage	250 V external conductor to N or PE
Electrical isolation	Air gap/creepage paths > 5.5 mm (supply/output)
Environmental conditions	
Field of application	for fixed installation (installation in gesis RAN distribution boxes) in interior and dry areas
Ambient operating temperature	-5 to +45 °C
Storage temperature	-25 to +70 °C
Relative humidity	5…93%
Moisture condensation	none
EMC requirements	conforms with EN 61000-6-2, EN 61000-6-3 and EN 50090-2-2
Climate resistance	according to EN 50090-2-2
Housing material	Plastic, halogen and phosphorous-free; colour: black
Behaviour in fire (housing)	conforms with UL 94 V-2
Weight	approx. 240 g
Dimensions	see "Dimensions, Connections and Function Elements"
CE marking	in accordance with EMC Directive (residential and functional buildings), Low Voltage Directive

9.6 Installation

9.6.1 Assembly (83.020.0401.0)

1. Latch the module onto the DIN rail.
2. Connect the extension modules to the basic module using the flat cables supplied. Ensure that, for each pair of extension modules, there is one on the right-hand and one on the left-hand side of the basic module. Please make a note of which module addresses are assigned to which slots on the basic module (by providing a label with "Module no.:"; see diagram under C.). Place the power supply on the outside of the extension modules, either to the left or right.
3. Establish the connections to both the power supply and EIB using the appropriate terminal strips.

9.6.2 Disassembly (83.020.0401.0)

1. Disconnect the power supply from the module.
2. Remove the flat cable from the front of the device.
3. Undo the connections at the terminal strips.
4. Insert a screwdriver into the locking slide and release the module from the DIN rail.

9.6.3   Replacing modules (83.020.0401.1)

1. Disconnect the power supply from the module.
2. Remove the flat cable from the front of the device.
3. Undo the connections at the terminal strips.
4. Slacken the knurled-head screws in the gesis RAN housing (see Fig.
5. Push the slide towards the modules as shown
    ("1": slide closed; "2": slide open).
    Notice: This will release all the modules.
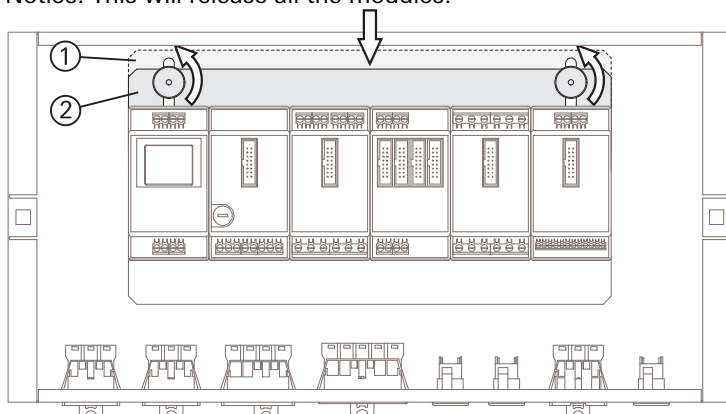
6. Replace the relevant module.
7. Reattach the modules by following steps 1 to 5 in reverse order.

10 Power supply gesis RM-PS 12/5

10.1 Device Description

|		
Designation	Power supply	
Type, model no.	gesis RM-PS 12/5	83.020.0421.0
	gesis RM-PS 12/5 B	83.020.0421.1
Device type	Power supply	
Design	Device with screw clamp terminals for installation in a gesis RAN distribution box	

NOTICE   Please ensure that you pay strict attention to the warnings and notes in the sections entitled "Proper Use" and "Selecting Personnel and Personnel Qualifications" in Chapter 1.

10.2 Function

The power supply is suitable for operating up to two basic modules, including the extension modules that are connected to them, from the gesis RM series of devices. It has a wide-range input and is suitable for both DC and AC voltage networks. The output (12.5 V DC / 5 W) is protected against short circuits, overload and overtemperature.

10.3 Dimensions, Connections and Function Elements
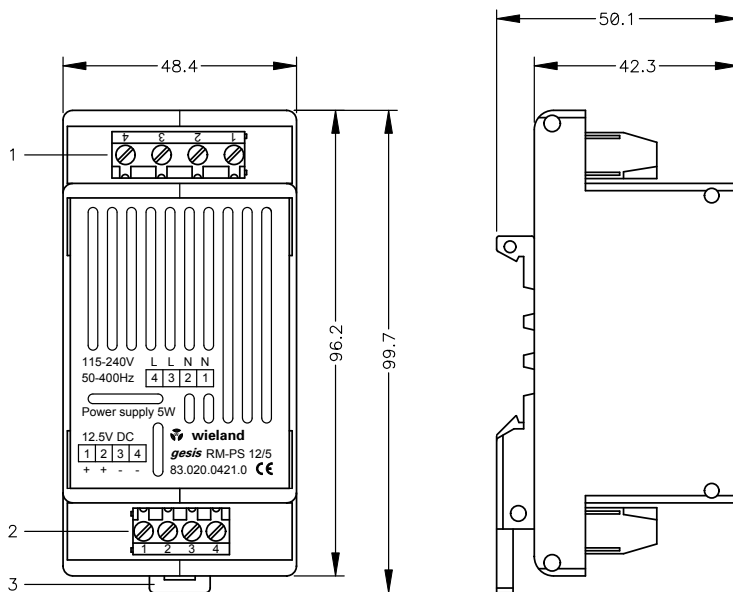
1   X1: 4-pin connection terminal strip for connecting the mains voltage
     (for details please refer to "Terminal Assignment")
2   X2: 4-pin connection terminal strip for connecting the output voltage
     (see "Terminal Assignment" for details)
3   Locking slide (only for 83.020.0421.0)

10.4 Terminal Assignment:

X1: Connection and routing of the mains voltage; terminals 1/2 and 3/4 are bridged inter-
nally

1—Connection for neutral conductor of the mains voltage (N or -)
2—Connection for neutral conductor of the mains voltage (N or −)
3—Connection for phase/external conductor of the mains voltage (L or +)
4—Connection for phase/external conductor of the mains voltage (L or +)

X2: Connection and routing of the output voltage; terminals 1/2 and 3/4 are bridged inter-
nally

1—Connection for output voltage, 12.5 V DC +
2—Connection for output voltage, 12.5 V DC +
3—Connection for output voltage, 12.5 V DC −
4—Connection for output voltage, 12.5 V DC −

10.5   Technical Data

Mains power input (connection X1)	85…264 V AC (for 85 V AC 80 % power, from 115 V AC 100%) 120…370 V DC
Frequency range	47…440 Hz
Efficiency	typically 73 %
AC current consumption	typically 0.12 A/115 V AC typically 0.08 A/230 V AC
Output (connection X2)	
Rated voltage	12,5 V DC ± 4 % (SELV) (I/O isolation according to EN 60601-1)
Rated current	400 mA
Power	5 W
Short circuit withstand capability	Yes
Overload protection	Yes
Overtemperature protection	Yes
Connection type (X1 and X2)	Screw clamp terminals 0.14 to 4 mm², single-core 0.14 to 2.5 mm², finely stranded 6.5 mm stripped in each case
Electrical safety	
Protection class	none
Degree of protection	IP 20
Degree of soiling	2
Surge voltage category	III
Rated insulation voltage	250 V external conductor to N or PE
Electrical isolation	Air gap/creepage paths > 5.5 mm (supply/output)
Environmental conditions	
Ambient operating temperature	−5°C to +45°C
Storage temperature	−25°C to +70°C
relative humidity	5% - 93%
Moisture condensation	not permitted
General data	
Housing material	Plastic, halogen-free
Housing colour	black
Behaviour in fire	V2 according to UL (housing)
Weight	approx. 110 g
Dimensions	see "Dimensions, Connections and Function Elements"
Height including TH 35-7.5 mounting rail	52 mm
CE marking	according to EMC Directive (residential and functional buildings), Low Voltage Directive
Mounting	on TH 35 mounting rail

10.6   Installation

10.6.1   Assembly (83.020.0421.0)

1. Latch the module onto the DIN rail.
2. Connect the extension modules to the basic module using the flat cables supplied.
    Ensure that, for each pair of extension modules, there is one on the right-hand and one
    on the left-hand side of the basic module. Please make a note of which module
    addresses are assigned to which slots on the
    basic module (by providing a label with "Module no.:"; see diagram under C.). Place
    the power supply on the outside of the extension modules, either to the left or right.
3. Establish the connections to both the power supply and EIB using the appropriate
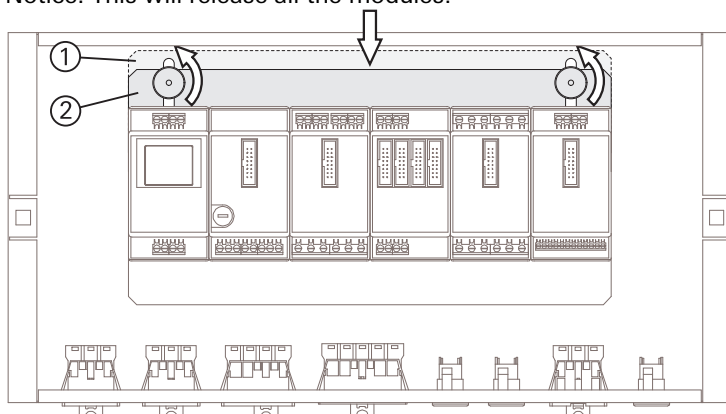   terminal strips.

10.6.2   Disassembly (83.020.0421.0)

1. Disconnect the power supply from the module.
2. Remove the flat cable from the front of the device.
3. Undo the connections at the terminal strips.
4. Insert a screwdriver into the locking slide and release the module from the DIN rail.

10.6.3   Replacing modules (83.020.0421.1)

1. Disconnect the power supply from the module.
2. Remove the flat cable from the front of the device.
3. Undo the connections at the terminal strips.
4. Slacken the knurled-head screws in the gesis RAN housing (see Fig.
5. Push the slide towards the modules as shown
    ("1": slide closed; "2": slide open).
    Notice: This will release all the modules.

6. Replace the relevant module.
7. Reattach the modules by following steps 1 to 5 in reverse order.